1. Existing Subsurface Sewage Disposal System

On May 21, 2004, TRC visited the site to determine the condition of the existing subsurface sewage disposal system. Present at the site were the Client, the Septic Contractor and TRC. The existing septic system is comprised of a 1,000 gallon masonry septic tank and two 4-inch absorption field lines approximately 50 feet in length each.

The existing absorption field lines appear to have approximately three to four feet of cover which exceeds the maximum recommended depth. The septic contractor advised that during a dye test of the existing system, dye was observed entering the existing drain inlet located at the corner of the building. This is an indication that the absorption field has failed.

It appears that the existing absorption field and septic tank are not functioning as originally designed and are in a state of disrepair. Therefore, TRC recommends that the SSDS should be replaced in its entirety.

2. Proposed Subsurface Sewage Disposal System Repair

Percolation Tests

Percolation tests were performed by TRC personnel on June 4, 2004. The result of these test are attached to this report. Based on the percolation test results of 28 and 31 minutes, an application rate of 0.50 was utilized to design the system.

Design Flow

The projected unit flow rates presented in the Table below were obtained from the NYSDEC publication entitled "Design Standards for Wastewater Treatment Works", 1988. These unit flow rates do not consider the use of certified water saving devices. Section 15-0134 of the Environmental Conservation Law mandates the use of certified water saving fixtures in all new and renovated buildings. The use of certified water saving fixtures could potentially reduce these unit flow rates by up to 20%.

Estimated Sewage Flow Table			
Type of Use	No. of Units	Unit Flow Rate	Average Daily Flow Rate
Employee	12	25	300
Kitchen Sink	6	1.5	9
Utility/Janitor Sink	2	1.5	3
Wash Sink (5 sinks at 5 uses per day)	25	1.5	38
Design Average Flow			350
Design Average Flow less 20%			280

Therefore, the proposed project is expected to generate an average daily flow rate 280 gallons

per day. In order to insure that there is adequate capacity in the proposed system; TRC recommends that all plumbing fixtures shall be replaced with certified water saving fixtures.

Septic Tank

The minimum septic tank size required is 1,000 gallons based on WCDOH standards.

Absorption Field

Based on the average daily flow rate and the application rate, it was determined that the required length of the absorption field required is 280 feet. An absorption field length of 280 feet has been provided.

Dosing Pump

The dosing pump has been designed to store the design average flow of 280 gallons in the event of a power failure or pump failure. The required dosing volume is a minimum 0.5 gallons per lineal foot of absorption field length per WCDOH standards or 140 gallons. A dosing volume of 150 gallons has been provided. The dosing pump selected is a Hydromatic SP40 submersible sewage ejector pump.

3. Design and Construction Drawing

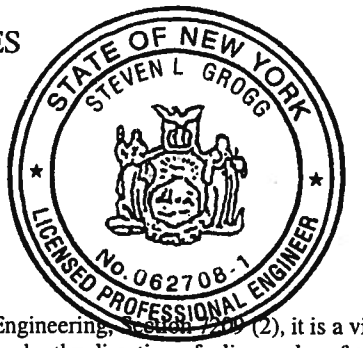
The details and design of the subsurface sewage disposal system are shown on Drawings SS-101, "Septic System Repair" dated 7/14/04 as prepared by TRC Raymond Keyes Associates.

4. Attachments

The following attachments have been included in Appendix A: Percolation Test Data Sheets, Sanitary Flow Rate Calculations, Septic System Calculations, Dosing Pump Calculations and Hydromatic SP40 Submersible Sewage Ejector Pump catalog cut sheet.

Respectfully submitted,

TRC RAYMOND KEYES ASSOCIATES
A Division of TRC Engineers, Inc.



Steven L. Grogg, PE
Vice President
NY State License #062708

Under New York State Education Law Article 145 - Engineering, Section 7209 (2), it is a violation of this law for any person to alter an item in any way in this Report, unless acting under the direction of a licensed professional engineer. If an item bearing the seal of an engineer is altered, the altering engineer shall affix to the item his seal and the notation "altered by" followed by his signature and the date of such alteration, and a specific description of the alteration.

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APPENDIX A

Calculations

DESIGN DATA SHEET - SEPARATE SEWERAGE SYSTEM

Project Name – Furnace Dock Road			
Owner Baker Properties, LP	**Address 485 Washington Avenue, Pleasantville, NY**		
Located at (Street)	**Sec.**	**Block**	**Lot**
(Indicate nearest cross street)			
Municipality Town of Cortlandt	**County Westchester**	**Watershed Hudson River**	

SOIL PERCOLATION TEST DATA REQUIRED TO BE SUBMITTED WITH APPLICATION

CLOCK TIME				PERCOLATION			
Run No.	Start	Stop	Elapse Time Min.	Depth to water from ground surface Start Inches	Stop Inches	Water Level Drop, In Inches	Soil Rate Min/In Drop
HOLE NUMBER PT-1							
1	0905	0927	22	10	9	1	22
2	0928	1000	32	10	9	1	32
3	1000	1028	28	10	9	1	28
4							
5							
HOLE NUMBER PT-2							
1	0905	0935	30	10	9	1	30
2	0935	1007	30	10	9	1	32
3	1007	1038	31	10	9	1	31
4							
5							
HOLE NUMBER							
1							
2							
3							
4							
5							
HOLE NUMBER							
1							
2							
3							
4							
5							

TEST PIT DATA REQUIRED TO BE SUBMITTED WITH APPLICATION

DESCRIPTION OF SOILS ENCOUNTERED IN TEST HOLES

DEPTH	HOLE NO. PT-1	HOLE NO. PT-2	HOLE NO.	HOLE NO.
G.L.				
6"	**6" Topsoil**	**8" Topsoil**		
12"				
18"				
24"				
30"				
36"		**8"-36" Silty Sand Loam w/Small Gravel**		
42"	**6"-42" Silty Sand Loam w/Small Gravel**			
48"				
54"				
60"				
66"				
72"				
78"				
84"				

INDICATE LEVEL AT WHICH GROUND WATER AND/OR ROCK IS ENCOUNTERED.

INDICATE LEVEL FOR WHICH WATER LEVEL RISES AFTER BEING ENCOUNTERED.

TESTS MADE BY _____ DATE _____

Soil Rate Used _____ Min/1" Drop _____ S.D. Useable Area Provided

No of Bedrooms Septic Tank Capacity Gals Masonry Metal

Absorption Area Provided by L.F. x 24" Width Trench Other

Name _____ Signature _____

Address _____ SEAL

_____

RPP:ng F:\PROJECTS30\31825\Reports\Site\PercolationTestRpt-Jun4-04doc.doc

TRC Raymond Keyes Associates

A Division of TRC Engineers, Inc.

Project:	**Baker Properties**	**Project No.:**	**31825**
Location:		**Date:**	**7/8/04**
Type of Calculation:	**Sanitary Flow Rate**	**Computed By:**	**RPP**
		Checked By:	**SLG**

Type of Use	No. of Units	Unit Flow Rate (gpd/Unit)		Average Daily Flow Rate
Employee	12		25	300
Kitchen Sink	6	per use	1.5	9
Utility/Janitor Sink	2	per use	1.5	3
Wash Sink (5 sinks @ 5 uses per day)	25	per use	1.5	38
Design Average Flow Total				350
Design Average Flow less 20%				280

TRC Raymond Keyes Associates
A TRC Company

Project:	**Furnace Dock Road**	**Project No.:**	**31825**
Location:	**Cortlandt, NY**	**Date:**	**7/8/04**
Type of Calc.:	**Absorption Field**	**Computed By:**	**RPP**
		Checked By:	**SLG**

Zoning District MD - Designed Industrial
Flow Rate = 280 gpd
Dosing Volume = 0.5 gallons per lineal foot per WCDOH

Lot	Total Flow (gpd)	Percolation Rate (min.)	Application Rate	Absorption Area (s.f.)	Field Length Required (feet)	Required Dosing Volume (gal)
Lot 5, Block 1	280	31 to 45	0.50	560	280	140

Required Septic Tank Capacity = 1,000 gallons

Required Dosing Chamber Capacity = 280 gallons

Dosing Chamber Width = 4 Feet
Length = 4 Feet

Dosing Volume Provided
Operating Depth = 1.25 Feet
Volume Provided = 150 gallons

Total Volume Provided
Alarm Depth = 2.42 Feet
Volume Provided = 290 gallons

Force Main Length = 90 Feet

TRC RAYMOND KEYES ASSOCIATES
A Division of TRC Engineers, Inc.

PROJECT:	**Furnace Dock Road**	**PROJECT NO.:**	**31825**
LOCATION:	Cortlandt, NY	**DATE:**	7/8/2004
TYPE OF CALC:	Dosing Pump Calculaiton	**COMPUTED BY:**	RPP
		CHECKED BY:	PAC

PUMP STATION DATA

Station Grade Elev.	355.00
Wet Well Floor Elev.	348.25
Invert In	352.92
Station Head Losses	0.00
Discharge Pipe Size	2.0

FORCE MAIN DATA

Length (ft.) =	90
Size (in.) =	1.5
Pipe Class =	PE
Invert Elev. At Discharge MH =	372.75
Peak Elev. In Force Main =	372.75
Coef., "C" =	130

SYSTEM HEAD CURVE DATA

Pump Rate (gpm)	Friction Loss per 1000 ft.	Hf (ft.)	Pump Head Curve	Total Dynamic Head (TDH) (feet)
10	12.53	1.13	26.0	23.55
15	26.54	2.39	24.8	24.81
20	45.22	4.07	24.0	26.49

HEAD CALCULATION

Static Head (Maximum)	=	23.67 ft.
Friction / 1000 Ft.	=	21.0
Friction Loss, Hf	=	1.89 ft.
Station Head Losses	=	0.00 ft.
TDH (Maximum)	=	25.56 ft.

Pump Flow Rates

Pump A = 13.0 gpm

Force Main Velocity

Pump A = 2.36 fps

TRC RAYMOND KEYES ASSOCIATES
A Division of TRC Engineers, Inc.

PROJECT:	**Furnace Dock Road**	**PROJECT NO.:**	**31825**
LOCATION:	Cortlandt, NY	**DATE:**	7/8/2004
TYPE OF CALC:	Dosing Pump Calculaiton	**COMPUTED BY:**	RPP
		CHECKED BY:	PAC

WET WELL VOLUME

Vol./ Ft. of Depth	=	120	gallons / foot
Pump On Depth	=	1.25	Feet
Vww, Volume of Wet Well	=	150	gallons

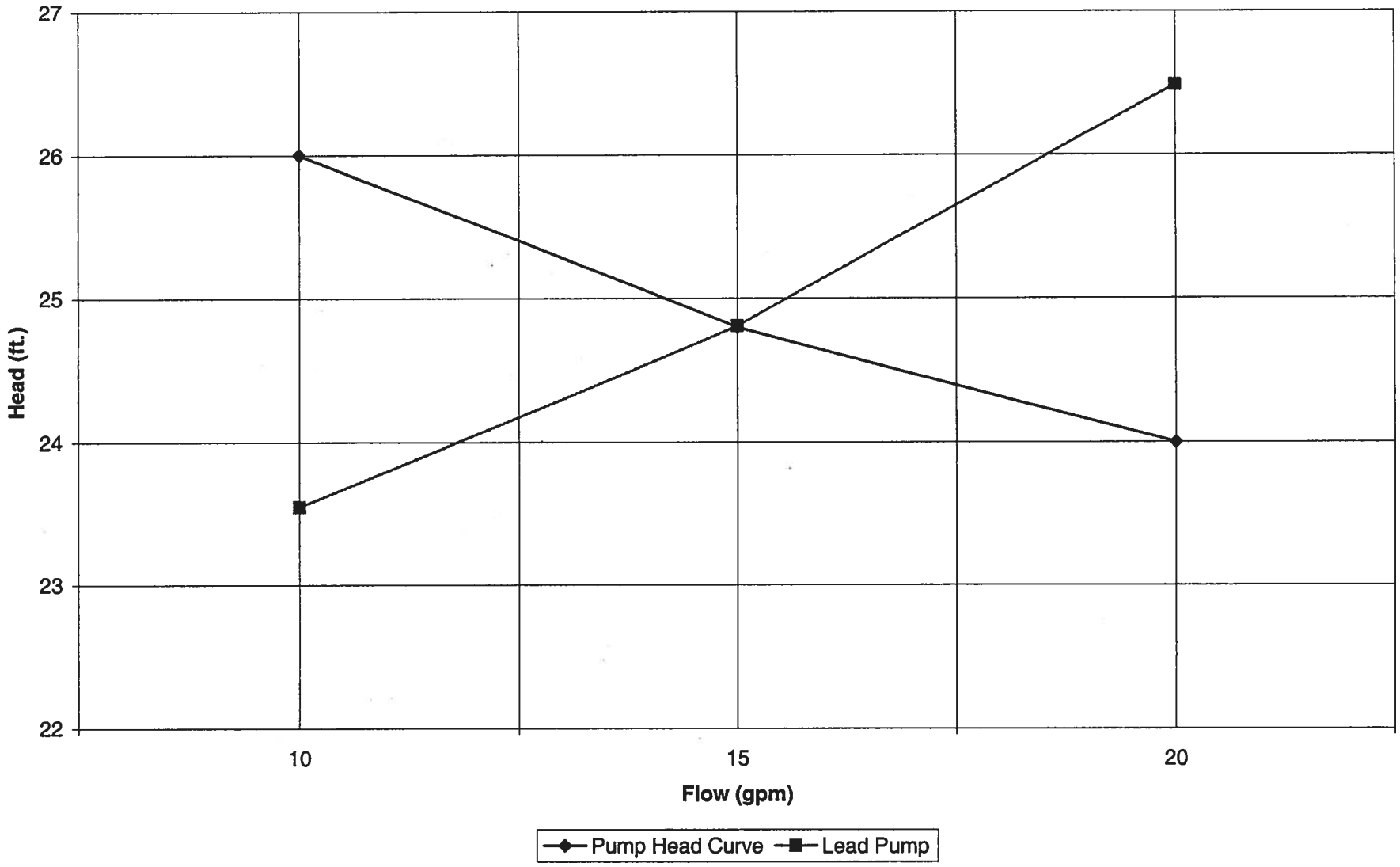
STATION ELEVATION DATA

Wet Well Floor Elev.	=	348.25
Lead Pump Off Elev.	=	349.08
Lead Pump On Elev.	=	350.33
Alarm On Elev.	=	351.33
Invert In	=	352.92

PUMP DATA

Pump Manu.	Hydromatic	
Model No.	SP40	
Horsepower	4/10	HP
Electrical Data	115	Volts
	1	Phase
	1750	RPM

Sanitary Pump Station



HYDROMATIC®

SP40

Submersible Sewage Ejector Pump

- Residential Sewage
- High-Capacity Sump
- Septic Tank Effluent

HYDROMATIC®
Pentair Pump Group

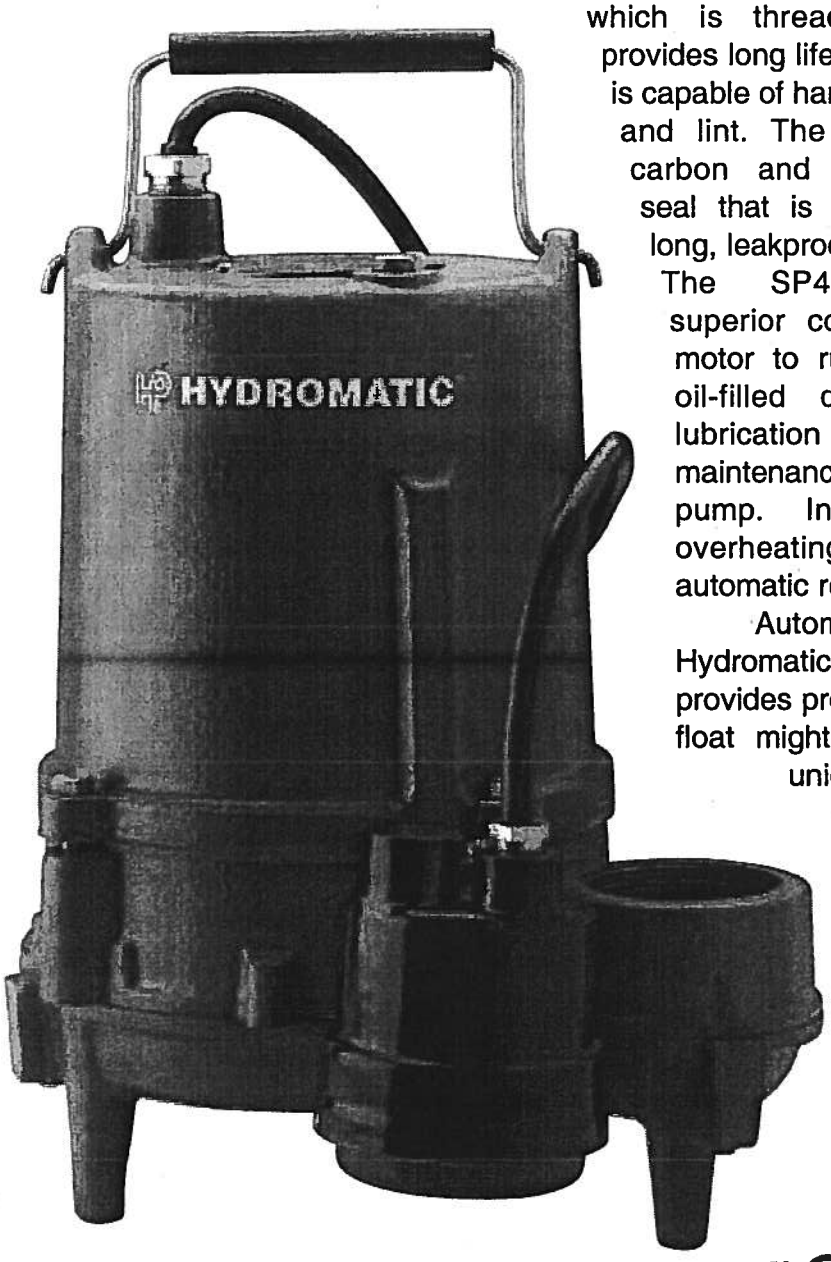
BCLP01726

SP40 - Submersible Sewage Ejector Pump

FEATURES

The Hydromatic SP40 submersible pump is specifically designed to meet the demands of handling wastewater and sewage in residence and commercial building applications. The 2 inch NPT discharge pump is available with a powerful 4/10 horsepower motor, in both automatic and manual configurations; and can handle capacities up to 120 gallons per minute and heads to 28 feet.

The SP40 features a heavy-duty cast iron construction that provides durability in rugged applications, as well as assisting in dissipating heat from the motor, for cooler operation. The pump's, non-clog, non-corrosive, thermoplastic impeller, which is threaded to a stainless steel shaft, provides long life even in demanding applications; and is capable of handling up to 1-3/4 inch spherical solids and lint. The SP40 also features a precision, carbon and ceramic faced mechanical shaft seal that is extensively lapped, providing for a long, leakproof life.



The SP40's oil-filled motor provides superior cooling characteristics, allowing the motor to run cool and quiet for years. This oil-filled design also provides permanent lubrication of the shaft bearings, minimizing maintenance and extending the service life of the pump. In addition, to protect against overheating, the motor windings contain an automatic reset thermal overload.

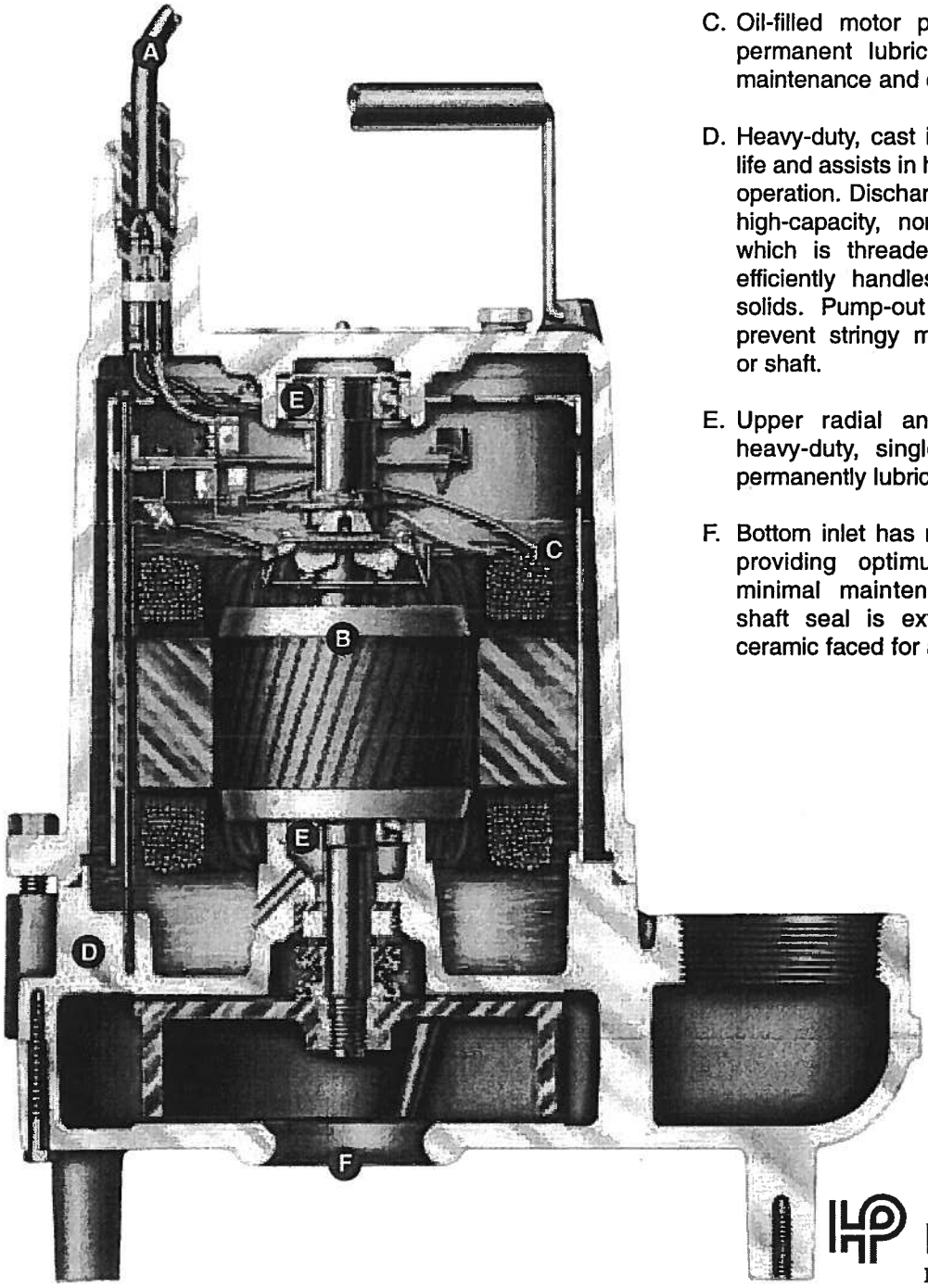
Automatic models feature the exclusive Hydromatic diaphragm pressure switch, which provides proven reliability in installations where a float might hang up. It also incorporates a unique "piggyback" plug arrangement, which allows for simple conversion to manual operation by simply removing the switch plug and inserting the motor plug directly into the electrical outlet. This feature provides an easy way of periodically cycling the pump to ensure it is operating properly.

HYDROMATIC®
Pentair Pump Group

SP40 - Submersible Sewage Ejector Pump

BENEFITS

Automatic models feature the exclusive Hydromatic diaphragm pressure switch with piggyback plug-in arrangement. Proven reliability for automatic operation in installations where a float might hang up. The switch is easily serviced and may be disconnected for manual pump operation.



A. Water-resistant power cord with molded plug is available in 10 or 20 foot lengths, and is easily field serviceable.

B. Energy-efficient 4/10 HP motor runs cool and quiet for long life. Motor windings contain automatic-reset, thermal overload protection.

C. Oil-filled motor provides superior cooling and permanent lubrication of bearings minimizing maintenance and extending service life.

D. Heavy-duty, cast iron construction provides long life and assists in heat dissipation for cooler motor operation. Discharge is standard 2 inch NPT. The high-capacity, non-clog, thermoplastic impeller, which is threaded to a stainless steel shaft, efficiently handles up to 1-1/4 inch spherical solids. Pump-out vanes on back on impeller prevent stringy materials from binding impeller or shaft.

E. Upper radial and lower thrust-bearings are heavy-duty, single-row ball bearings that are permanently lubricated for service-free life.

F. Bottom inlet has no screen to become clogged, providing optimum pump performance and minimal maintenance. Precision, mechanical shaft seal is extensively-lapped, carbon and ceramic faced for a long leakproof life.

HYDROMATIC®
Pentair Pump Group

SP40 - Submersible Sewage Ejector Pump

Details

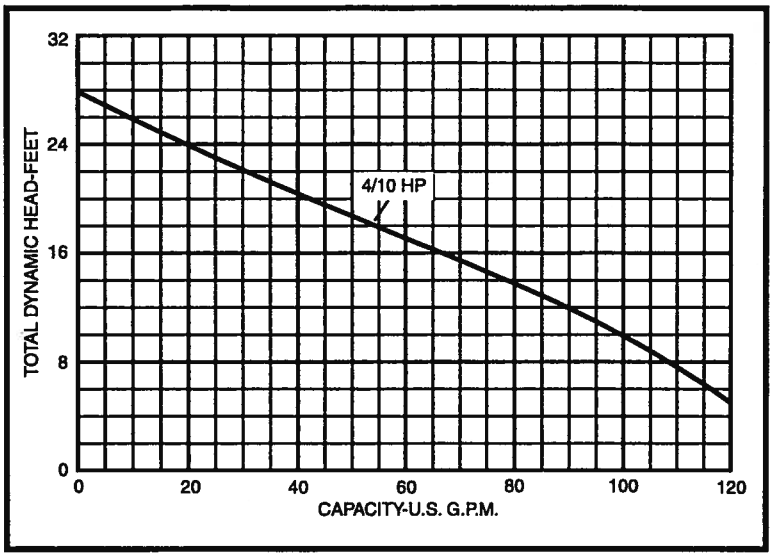
Pump Characteristics

Pump/Motor Unit	Submersible	
Manual Models	SP40MI	SP40M2
Automatic Models	SP40AI	SP40A2
Horsepower	4/10	
Full Load Amps	9.4	4.7
Motor Type	Split Phase	
R.P.M.	1750	
Phase Ø	1	
Voltage	115	230
Hertz	60	
Operation	Intermittent	
Temperature	140° F Ambient	
NEMA Design	A	
Insulation	Class A	
Discharge Size	2" NPT	
Solids Handling	1 1/4"	
Unit Weight	60 lbs.	
Power Cord	18/3, SJTW, 115V = 10' std. (20 optional) 230V = 20'std.	

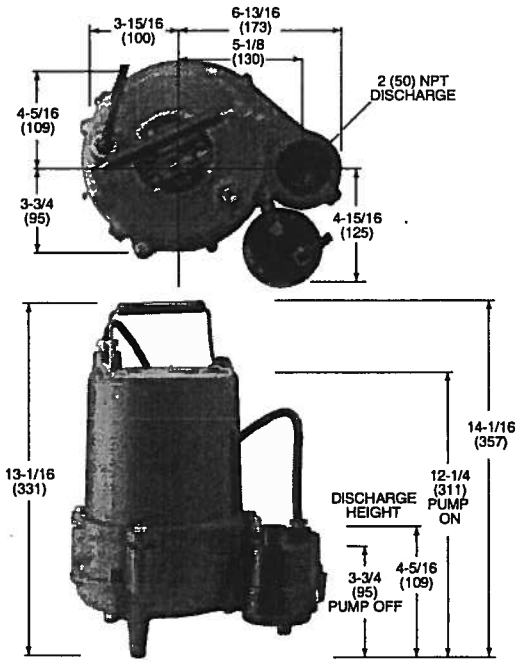
Materials of Construction

Handle	Steel
Lubricating Oil	Dielectric Oil
Motor Housing	Cast Iron
Pump Casing	Cast Iron
Shaft	Stainless Steel
Mechanical Shaft Seal	Seal Faces: Carbon/Ceramic Seal Body: Brass Spring: Stainless Steel Bellows: Buna-N
Impeller	Thermoplastic
Upper Bearing	Brass Sleeve Bearing
Lower Bearing	Single Row Ball Bearing
Fasteners	Stainless Steel

Performance Data



Dimensional Data



All dimensions in inches. Metric for international use. Component dimensions may vary ± 1/8 inch. Dimensional data not for construction purpose unless certified. Dimensions and weights are approximate. On/Off level adjustable. We reserve the right to make revisions to our product and their specifications without notice.

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